

Title (en)

SCAPE MICROSCOPY WITH PHASE MODULATING ELEMENT AND IMAGE RECONSTRUCTION

Title (de)

SCAPE-MIKROSKOPIE MIT PHASENMODULATIONSELEMENT UND BILDREKONSTRUKTION

Title (fr)

MICROSCOPIE SCAPE AVEC ÉLÉMENT DE MODULATION DE PHASE ET RECONSTRUCTION D'IMAGE

Publication

**EP 3465319 A4 20200219 (EN)**

Application

**EP 17807328 A 20170530**

Priority

- US 201662343112 P 20160530
- US 2017034984 W 20170530

Abstract (en)

[origin: WO2017210182A1] A scanning element routes a sheet or beam of excitation light through a first set of optical components and into a sample at an oblique angle. The position of the excitation light within the sample varies depending on the orientation of the scanning element. Fluorophores within the sample emit fluorescent detection light. The first set of optical components route the detection light back to the scanning element, and the scanning element routes the detection light through a second set of optical components and into a camera. The second set of optical components includes a phase modulating element that induces a controlled aberration so as to homogenize point spread functions of points at, above, and below a focal plane when measured at the camera. In some embodiments, the images captured by the camera are processed to correct for aberration by performing deconvolution of a point spread function.

IPC 8 full level

**G02B 21/00** (2006.01); **G02B 21/10** (2006.01); **G02B 21/36** (2006.01); **G02B 26/08** (2006.01); **G02B 26/10** (2006.01); **G02B 27/00** (2006.01); **G02B 21/16** (2006.01); **G02B 26/06** (2006.01)

CPC (source: EP US)

**G01N 21/6458** (2013.01 - US); **G02B 21/002** (2013.01 - EP); **G02B 21/0032** (2013.01 - US); **G02B 21/0048** (2013.01 - US); **G02B 21/0064** (2013.01 - US); **G02B 21/0072** (2013.01 - US); **G02B 21/0076** (2013.01 - US); **G02B 21/0084** (2013.01 - US); **G02B 21/10** (2013.01 - EP); **G02B 21/361** (2013.01 - US); **G02B 21/367** (2013.01 - US); **G02B 26/105** (2013.01 - EP); **G02B 27/0075** (2013.01 - EP); **G02B 21/16** (2013.01 - EP); **G02B 26/06** (2013.01 - EP); **G02B 2207/114** (2013.01 - EP)

Citation (search report)

- [YD] WO 2015109323 A2 20150723 - UNIV COLUMBIA [US]
- [Y] WO 2015124648 A1 20150827 - ZEISS CARL MICROSCOPY GMBH [DE]
- [Y] EP 2829903 A1 20150128 - FUNDACIÓ INST DE CIÈNCIES FOT NÍQUES [ES], et al
- [YA] KRIPA PATEL ET AL: "High-speed, 3D SCAPE Microscopy of Fresh Tissues for in situ Histopathology", PROCEEDINGS OF BIOMEDICAL OPTICS CONGRESS 2016, "OPTICS AND THE BRAIN 2016", FORT LAUDERDALE, FL, USA, vol. 2, 1 January 2016 (2016-01-01), Washington, D.C., pages TTu2B.2, XP055655219, ISBN: 978-1-943580-10-1, DOI: 10.1364/TRANSLATIONAL.2016.TTu2B.2
- [Y] SEAN QUIRIN ET AL: "Calcium imaging of neural circuits with extended depth-of-field light-sheet microscopy", OPTICS LETTERS, vol. 41, no. 5, 1 March 2016 (2016-03-01), US, pages 855, XP055655336, ISSN: 0146-9592, DOI: 10.1364/OL.41.000855
- [T] THIERRY FOURNEL EDITED BY BAHRAM JAVIDI ET AL: "Information Optics and Photonics", 1 January 2010 (2010-01-01), pages 243 - 245, XP055655248, ISBN: 978-1-4419-7380-1, Retrieved from the Internet <URL:https://epo.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwY2BQATZZDZNNUIJ1LYxSLXVnJjMNdZOA9ahaioGFSVJKmqmBiQloN3Kks0mlu3mQu4kP4pxtzBI8fWg3x8TQUtfc2MJAF9jVYTY2AK3ecoyKgg-nAM20NLMwAm\_dAioFqYyAnegE5YOMloHtqfSsTKQaxE2QgTUVtK1AilGpKkOYQQDa-FOAZq1iYQZ28FrM5GIRBgXoFiFQkCn4F4DOUVYA9vcVAjLyS0AH2RaLMki7uYY> [retrieved on 20200107]
- [T] SEAN QUIRIN ET AL: "Instantaneous three-dimensional sensing using spatial light modulator illumination with extended depth of field imaging", OPTICS EXPRESS, vol. 21, no. 13, 27 June 2013 (2013-06-27), pages 16007, XP055373955, DOI: 10.1364/OE.21.016007
- See references of WO 2017210182A1

Designated contracting state (EPC)

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DOCDB simple family (application)

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